

### **Remarks**

Applicants have received and reviewed an Office Action dated January 11, 2006. Applicants have amended claims 1, 5, 7 and 20. Claims 11-19 have been canceled without prejudice. Applicants submit the amended claims are supported by the specification. No new matter has been asserted. Claims 1-9 and 20 are pending.

Reconsideration of the application is requested in view of the above amendments and the following remarks.

### **Claim Rejections Under 35 U.S.C. § 112**

The Examiner rejected claims 1-9 and 20 under 35 U.S.C. § 112, first paragraph. Applicants respectfully traverse this rejection.

Without acquiescing to the Examiner's rejections and solely to expedite prosecution, Applicants have amended claims 1 and 20 to remove the recitation, "about". As the language the examiner objected to no longer is recited in the claims, Applicants believe claims 1-9 and 20 are in condition for allowance and withdrawal of this rejection is respectfully requested.

### **Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 1-9 and 20 stand rejected under 35 U.S.C. § 103(a) as being obvious over *Kaimal et al.* Applicants respectfully traverse this rejection and request reconsideration in view of the following arguments.

The Office Action asserts that one having ordinary skill in the art at the time the invention was made would have found it obvious to vary and/or optimize the amounts and ratios of safflower oil and/or other fatty acids that are combined with the coconut oil in the interesterfying reaction, according to the guidance provided by *Kaimal et al.* Applicants respectfully disagree with the above assertions for at least the following reasons.

The amended claims recite a composition including "46 mol % of omega 6 polyunsaturated fatty acids" and "17 mol % of Lauric acid". Each amount is specified by a single integer: 46 mol-% and 17 mol-%. 46 Mol % of omega 6 polyunsaturated fatty acids

represents surprising and advantageous increase in these fatty acids compared to prior art methods. Similarly, the level of lauric acid is advantageous. Applicants respectfully submit that a reference disclosing different amounts of these ingredients, amounts lacking the advantages of the recited amounts, cannot teach or suggest the claimed advantageous amounts, which are each recited in the claim as a single integer.

The *Kaimal et al.* reference does not disclose or suggest a composition including “46 mol % of omega 6 polyunsaturated fatty acids” and “17 mol % of Lauric acid”. The method disclosed in *Kaimal et al.* did not achieve these advantageous levels. Had *Kaimal et al.* been able to figure out how to produce these advantageous levels, they would have trumpeted this news in their publication, the *Kaimal et al.* reference. Had *Kaimal et al.* been able to achieve this advantageous result at a later date, they would have trumpeted that achievement in a later publication. Therefore, we conclude that the method of the *Kaimal et al.* reference cannot produce the claimed advantageous amounts.

Accordingly, the *Kaimal et al.* reference does not disclose or suggest the presently claimed advantageous amounts of ingredients. In fact, the method of the *Kaimal et al.* reference cannot produce the claimed advantageous amounts. Therefore, the *Kaimal et al.* reference neither teaches nor suggests the presently claimed invention.

Applicants further contend that the presently claimed interesterfied coconut oil is not obvious because there is no suggestion or motivation in *Kaimal et al.* to obtain the presently claimed interesterfied coconut oil; there is no reasonable expectation of success; and *Kaimal et al.*, does not teach or suggest all the claim limitations.

The presently claimed product contains different amounts of saturated and unsaturated fatty acids. The following table compares the amounts of saturated and unsaturated fatty acids in the presently claimed invention and the product disclosed in *Kaimal et al.*, compared to coconut oil.

Fatty acids	Coconut Oil	Kaimal et al.	Presently Claimed Product	Type
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Caprylic (8:0)	2	7.5	0	Saturated
Capric (10:0)	3	11.7	0	Saturated
Lauric (12:0)	48	39.7	17	Saturated
Myristic (14:0)	24	21.1	11	Saturated
Palmitic (16:0)	9	5.4	9	Saturated
Stearic (18:0)	3	1.0	2	Saturated
Oleic (18:1)	9	5.4	15	Unsaturated
Linoleic (18:2) (omega 6)	2	8.2	46	Unsaturated

The presently claimed process resulting in the presently claimed product surprisingly enhances the levels of Linoleic acid (omega 6 polyunsaturated fatty acids) and decrease the levels of Lauric acid in interesterified coconut oil. This is an improvement over *Kaimal et al.*

In the presently claimed product, the levels of Linoleic acid are greatly increased by 22%, and the levels of Lauric acid are reduced by 35%. In contrast, in *Kaimal et al.*, the level of Linoleic acid is increased by a paltry 3% and the level of Lauric acid is also reduced.

The presently claimed invention has drastically improved the amount of Linoleic acid and reduced the levels of Lauric acid, which is desirable. *Kaimal et al.* do not even teach or suggest a product having similar levels of Linoleic acid and Lauric acid but merely lower levels of the same.

Moreover, *Kaimal et al.* fail to teach one skilled in the art how to achieve the more effective product as disclosed in the presently claimed invention. Since the methods employed in the *Kaimal et al.* reference were incapable of producing the presently claimed advantageous product, the reference cannot make obvious the claimed invention.

Accordingly, based on the foregoing differences, it is respectfully submitted that the *Kaimal et al.* reference neither teaches nor suggests the presently claimed invention, and withdrawal of this rejection is respectfully requested.

**Additional Detailed Arguments Demonstrating that the Kaimal et al. Reference Does Not Make Obvious the Presently Claimed Invention**

In particular, *Kaimal et al.*, state "since the recommended maximum daily intake of Linoleic acid is only 10% of the total calorie intake, a product with just enough Linoleic acid content to satisfy the essential fatty acid requirement with a coconut oil base would yield a product of high stability and good nutritive value". pg. 8, first column. Thus, *Kaimal et al.*, suggest that an "interesterified coconut oil comprising 46 mol% of omega 6 polyunsaturated fatty acids", as recited by claim 1, would be undesirable. Therefore, *Kaimal et al.*, fail to provide adequate guidance to obtain an interesterified coconut oil having 46 mol % of omega 6 polyunsaturated fatty acids, and 17 mol % of Lauric acid as recited by independent claim 1. Accordingly, *Kaimal et al.* provide no motivation for one of skill in the art to produce an interesterified coconut oil having 46 mol % of omega 6 polyunsaturated fatty acids, and 17 mol % of Lauric acid as recited by independent claim 1.

Applicants respectfully submit that improvements upon known compositions and products can always be patentable. The presently claimed invention is an improvement over the product disclosed by *Kaimal et al.* because the amount of Linoleic acid in the presently claimed invention is surprisingly at much higher levels than in the product disclosed by *Kaimal et al.* For example, *Kaimal et al.* disclose a product that contains only 6 mol% Linoleic acid and 29.05 mol% Lauric acid. In contrast, the presently claimed invention results in interesterified coconut oil that contains 46 mol% Linoleic acid and 17 mol% Lauric acid.

The amounts of Linoleic acid in the presently claimed product are surprisingly higher than the amount of Linoleic acid disclosed by *Kaimal et al.* Moreover, the above table demonstrates the presently claimed composition does not contain caprylic and capric acids, which are unhealthy saturated fats. Further, the amount of oleic acid, an unsaturated fatty acid, has increased in the presently claimed invention. The present product has not only improved Linoleic acid but also increased the amount of oleic acid present, an omega-9 fatty acid, and eliminated some unhealthy saturated fatty acids.

Accordingly, based on the foregoing differences, it is respectfully submitted that the *Kaimal et al.* reference neither teaches nor suggests the presently claimed invention, and withdrawal of this rejection is respectfully requested.

#### **Further Arguments Against the *Kaimal et al.* Reference**

Applicant respectfully submits that *Kaimal et al.* follow a different method from that used by Applicant. *Kaimal et al.* use 10% safflower oil for modification of coconut oil using a lipase-catalyzed reaction. The Applicants have used free fatty acids obtained from hydrolyzed safflower oil. The experiments in *Kaimal et al.* do not give clear cut evidence that the observed changes are only due to lipase catalyzed modification, as opposed to the result of mere dilution of coconut oil by safflower oil. Such products cannot be considered as structured lipids, but may be treated as mere blended oils.

Applicants have also proven that blended oils are not identical to structured lipids of similar composition in terms of physico chemical and nutritional properties. The presently claimed invention monitors omega-6 fatty acids that have been actually incorporated into coconut oil lipids. Hence it should be considered as a new structured lipid and not a blended oil in which omega-6 fatty acids are detected only because of the addition of a second oil.

*Kaimal et al.* do state that higher Linoleic acid means high stability and nutritional value. The teaching of *Kaimal et al.* do not help those skilled in the art achieve high levels of Linoleic acid. Thus, the instruction by *Kaimal et al.* that a higher level of Linoleic acid means high levels of stability and nutritional value does not establish obviousness *per se* for the presently claimed invention because one skilled in the art would not know how to arrive at such a compound based on the teachings of *Kaimal et al.*

Based on the foregoing reasons, the presently claimed product is not obvious in the lipid cited by the *Kaimal et al.* reference because the lipid *per se* is distinct.

Accordingly, based on the foregoing differences, Applicants respectfully submit that *Kaimal et al.* neither teaches nor suggests the presently claimed invention and withdrawal of this rejection is respectfully requested.

*Kaimal et al.* have not proven beyond doubt that they are dealing with interesterified oil and not blended oil. Applicants provide the following comments.

*Kaimal et al.* have not included a control sample where in lipase enzyme responsible for interesterification reactions is removed from the reaction and showed that in its absence the resulting lipid do not contain higher amount of omega-6 PUFA which is claimed to be present in interesterified oil.

*Kaimal et al.* also fail to provide evidence that the interesterification reaction did occur at such a short incubation period of 20 minutes of contact with enzyme. Furthermore, *Kaimal et al.* fail to provide proof of the complete removal of unreacted safflower oil after the reaction to rule out the possibility that the linoleic acid shown in interesterified fat is not from the unreacted safflower oil itself. Normally the linoleic acid content is in the range of 70-75% of total fatty acids in safflower oil. *Kaimal et al.* have taken 100g Coconut oil to which they have added 10 g Safflower oil as source of linoleic acid. Therefore, the linoleic acid contribution from the safflower oil to the reaction mixture would be in the range of 6.3 to 6.8% of total fatty acids in the reactants. This along with 1.9% of linoleic acid, which is already present in the Coconut oil, used by *Kaimal et al.*, the total will work out to a final concentration of 8.2 to 8.7% linoleic acid in the final product, a value reported by *Kaimal et al.*, in their publication. The final figure reported by *Kaimal et al.*, can be easily achieved by blending coconut oil with safflower oil in a proportion mentioned by *Kaimal et al.* Interesterification is not required for achieving the values reported by *Kaimal et al.* They have also not proven the cholesterol lowering properties of their modified lipids.

In contrast, Applicants have clearly shown that all the unreacted fatty acids are completely removed after acidolysis reaction and the change in the fatty acid composition in modified lipids obtained is a true reflection of the acidolysis reaction and not due to the contamination from unreacted substances. Applicants have further proven the differences between native, blended and interesterified oils by physical measurements as well as by nutritional evaluation in experimental animals. Therefore, Applicants have proven beyond doubt

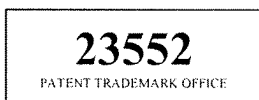
that structured lipid Applicants have obtained by acidolysis reaction is a true modified lipid which is different from that obtained by *Kaimal et al.*

Hence the presently claimed invention, an interesterified coconut oil obtained from interesterifying coconut oil with free fatty acids obtained from hydrolysis of triglycerides of safflower oil, and having 46 mol % of omega 6 polyunsaturated fatty acids, and 17 mol % of Lauric acid as recited by independent claim 1 is novel and tenable and should be considered in light of the above clarifications provided.

Accordingly, based on the foregoing differences, it is respectfully submitted that the *Kaimal et al.* reference neither teaches nor suggests the presently claimed invention, and withdrawal of this rejection is respectfully requested.

### **Conclusion**

In summary, Applicant submits that each of claims 1-9 and 20 is in condition for allowance, and notification to that effect is earnestly solicited. The Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below, if the Examiner believes that doing so will expedite prosecution of this patent.




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MTS:SMM

Respectfully submitted,

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